

**THE PORT AUTHORITY**  
 OF NEW YORK AND NEW JERSEY

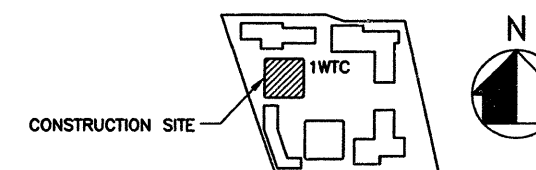
**ENGINEERING PROGRAM MANAGER**  
 WORLD TRADE  
 CHIEF ELECTRICAL ENGINEER

**NOTES:**

- FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES, SEE DWG. E-1. FOR INSTALLATION DETAILS, SEE DWG. E-2. FOR WIRING DIAGRAMS, SEE DWG. E-3.
- DISCONNECTION OF EXISTING SPEAKER CIRCUIT AND CONNECTION OF INSTALLED SPEAKER CIRCUIT AT THE TSC AND/OR THE EXISTING SPEAKER SHALL BE MADE AFTER INSTALLED SPEAKER WIRING IS TESTED AND OPERATIONAL. THIS WORK SHALL BE DONE IN THE PRESENCE OF THE ENGINEER.
- DISCONNECTION AND REMOVAL OF EXISTING TENANT AMPLIFIER AND ASSOCIATED CONDUIT AND WIRING UP TO THIS SPEAKER SHALL BE MADE AFTER INSTALLED SPEAKERS ARE TESTED AND OPERATIONAL. THIS WORK SHALL BE DONE IN THE PRESENCE OF THE ENGINEER.
- CONTRACTOR SHALL REMOVE EXISTING SPEAKERS ONLY AFTER INSTALLED DEVICES ARE OPERATIONAL.
- FOR REMOVAL AND PATCHING PLAN DETAILS (P-1, P-2, P-3 & P-4), SEE DWG. A-1.
- ALL REMOVED SPEAKERS SHALL BE RETURNED TO THE ENGINEER.
- ALIGN CENTER LINES OF SPEAKERS (ON WHICH WORK IS TO BE DONE IN THE CORRIDORS) TO THE CENTER LINE OF THE CORRIDOR. IN CASE OF CONFLICT WITH EXISTING CEILING LIGHTING AND GRILLS, FINAL LOCATION OF SPEAKERS SHALL BE ADJUSTED WITH THE APPROVAL OF THE ENGINEER.
- SINCE FIRE ALARM CIRCUIT LENGTH IS CRITICAL, ROUTING AND INSTALLATION OF ALL FIRE ALARM CIRCUITS SHALL BE AS SHOWN ON DRAWING.
- COORDINATE REMOVAL OF ALL SPEAKERS WITH ENGINEER. DISCONNECT AND ABANDON EXISTING SPEAKER CIRCUITS IN CEILING. TAPE ENDS OF ABANDONED CONDUCTORS AND TAG AS ABANDONED. THIS WORK SHALL BE DONE IN THE PRESENCE OF THE ENGINEER.
- REPLACE EXISTING SPEAKER WITH THE SHOWN WATTAGE RATED SPEAKER, AND REWIRE AS SHOWN. EXISTING BACKBOX CAN BE UTILIZED IF IT IS SIMILAR TO THE TYPICAL SPEAKER BOX. SEE INSTALLATION DETAIL "A" ON DWG. E-2.

**SPEAKER CIRCUIT/LOADING TABLE**

SPEAKER TAP/db SETTING	Watts	1/8	1/4	1/2	1	2	4	TOTAL POWER (Watts)	CIRCUIT LENGTH (ft.)
QUANTITY OF SPEAKERS PER CIRCUIT	SPK-A	5	3	6	0			4.375	662
	SPK-B	6	3	4	2			5.500	757
	SPK-C	5	1	6	3			6.875	584
	SPK-D	4	2	6	1			5.000	590
GRAND TOTAL								21.750	2593


**KEY PLAN**

0 12 24  
 SCALE IN FEET

**ELECTRICAL**

Title  
**FIRE ALARM SYSTEM  
 DEVICE UPGRADE  
 PHASE III  
 1 WORLD TRADE CENTER  
 CONTRACT NO. 3**
**83rd FLOOR  
 SPEAKER  
 INSTALLATION AND  
 REMOVAL PLAN**

This drawing subject to conditions in Contract. All inventions, ideas, designs and methods herein are reserved to Port Authority and may not be used without its written consent.

S. FELDSTEIN E. KOTSKI A.S.  
 Designed by Drawn by Checked by

AUGUST 9, 1999  
 Date

WTC-861.176 E-083-2  
 Contract Number Drawing Number